Play and dream your city

Using the "Cave" technology as a tool for sketching and playing and interacting with your city.

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0.1. Between the Analogue, the Digital and the Intuitive Dream. Using the "Cave" technology as a tool for sketching and playing and interacting with your city

Are we conscious of the tools we use in the reflective evaluation of the sketch process? Is there room enough for the abstract and intuitive sketch process? The possibilities to unfold the intuitive sketch process have been expanded with the new digital tools. The analog sketch and 3DMAX are two extremely different tools to work with, and the introduction of the cave and panorama technology just expands the possibilities. However, these new technologies require a lot of patience and curiosity from the user. Can we use Kolb's reflective loops as a platform for methodological reflection? This article will use David A Kolb's "Experimental Learning", Bergson's "intuition as a method" The art historian Lise Bek´s five analysis aspects compared with Juel-Christiansen urban analysis, and Vivian Sobchack who had made a systematic analysis of science fiction cinema and architecture as a genre. Five tool to investigate the creative field between the digital and the analogue. There is an incompatibility embedded in the sketching process. The analogue sketch represents the known and open-ended, the digital the more concrete, while the cave technology is a more open and free dream room for experience.
5. Keywords: Analog, digital, game, dream, cave, intuition, and hermeneutic.

0.2. The Computer and the Pencil are Complete Contrasts as Tools

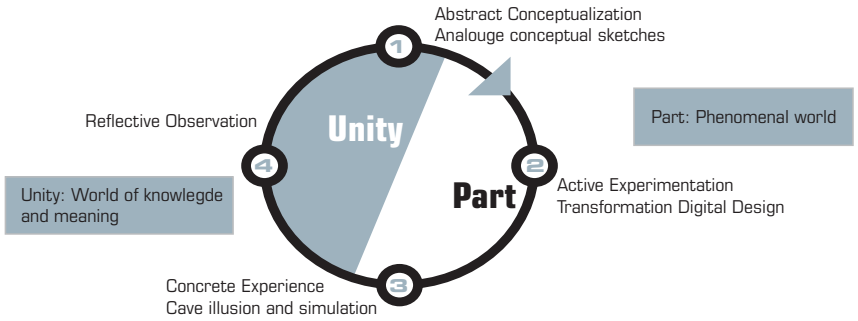
It is this article's statement that the analogue and the digital sketch processes create a new synthesis. But if this is true why should we sketch on paper when we have the perfect image in 3D?

The 3D sketch is inhibited and controlled by a digital geometry and an intense use of photorealistic surface structures, but in scale it is free, weightless, and transparent. In this sense it has the potential for different and totally free abstraction.

When the digital sketch is experienced 1 to1 in the Cave it looks like a simple intuitive sketch loop as David Kolb´s circle model for "experimental learning".

This article will look at the process based on three case "Frydendal". With the case examples we will try to maintain, document, and analyze the intuitive sketch process from 2D to 3D with drawings, paintings, 3DMAX sketches implemented in VR4MAX, into the "Cave", and examine if it is possible to maintain some of the open qualities and elements of the analogue sketch process in the digital sketch. We analyze the signification of the shift in scale; from being outside the sketch to experiencing the virtual and digital sketch 1 to 1 from the inside. This work process will soon becomes an everyday experience for architects and designers, as in the future we will move free and weightless in scale with no constrains in the virtual and the intuitive sketch process.

In the broadest sense, the work of the



David Colb works with four elements in his circelmodel from "Experimental learning".
This model includes the the cave and the intuitive sketch process.
Colbs circelmodel is also a image of the hermaneutic circle, unity and part.

Platos cave parable describes the movement from the world of the phenomena to the light of the ideas.
With the cave parable Plato also works with explaining the theory of knowledge categories.

architect has always been virtual – the space emerging out of the intuitive, wordless, and the unconscious. The sketch process indicates spaces and imaginary places which do not exist and may later become materialized in the real world.
There is a long tradition among architects for creating virtual utopias. Etienne-Louis Boullée with his sublime and clean geometrical forms, Giovanni Battista Piranesis with his infinite labyrinths, basements, cathedrals, and prisons, and Claude–Nicolas Ledoux with his arcadia utopian architecture are all excellent examples of this type of architect. Today it is Lebbeus Wood's prismatic, organic, floating, mutating, and abstract structures, as well as Marcos Novak's and Greg Lynn's hybrid, digital, interactive, and architectonic installations that carry the proud tradition of the virtual architecture into the future.

"A CAVE [tm] is a room in which the user is presented with high-resolution stereo-pair images projected in real-time on 3 walls and the floor. When viewed through lightweight shutter glasses, the left/right stereo images are presented separately to the left and right eyes respectively, producing the illusion of 3D objects appearing both within and beyond the walls of the CAVE. The images are presented with reference to the users viewpoint, which is continuously updated via a head-tracking unit; thus even as the user moves around in a CAVE the environment displayed will always be perspective-correct."[1]
In 1909 and throughout their analytic cubistic period Picasso and Braque did a series of important experiments analyzing and explaining how we perceive the world in three dimensions. They transferred their experiences of depth cues and spatial layout to a series of simultaneous views on the 2D canvas. These experiments where difficult for normal people to comprehend, because the level of abstraction was too high. As it was not a simulation of 3D space but a series of experiments trying to transform 3D to 2D.

0.3. Intuition and Hermeneutics, a tool for the sketch loop

There is not just one method but a multiplicity of possible ways to approach analyzing and understanding architecture. The closer we get to the creative decision-making and its significance, the more blurred, transparent, and double-woven it becomes. Alberto Perez-Gomez:

"A simple choice between art (as a self –gratifying formalism) or science (as applied theory or methodology, regardless of its origin or sophistication), produces equally abominable results and contributes to our alienating urban environments. If there is an ahistoric essence of architecture this is not reducible to buildings, theories, or designs."[3]

If we, in this three cases, are to interpret and use Kolb´s three points circle model it would look like this:

1. Analog sketch. Abstract Conceptualization;
2. Digital design. Active Experimentation;
3. Digital Cave. Concrete Experience and
4. The horizontal Reflective Observation.
- A sequence or chain of four points, which according to Kolb represents two levels:
1. Concrete experience/abstract conceptualization and
2. Active experimentation/reflective observation.
The two levels represent two dialectic and contradictory dimensions, and contain a dynamic representation of both the partial and the whole of action and experience - action and reflection in a repeated sequence.
The process is also a transformation of a representation through several types of media. And it also represents several epistemological categories which describe the relationship between the images and what it reproduces, and how it becomes experienced.

0.4. How do I comprehend what I see? Space analysis, a tool for working with the virtual architecture

The architect's professional field has expanded with the new virtual Medias, here is architecture based on a new set of rules from film, fiction, interaction, complexity, transparency and artificial intelligence. But there is still some reminiscence of the aesthetic language of the classical architecture that can be used; especially the classical utopian and virtual architecture. It seems as if the architecture of the impossible has now become possible. However, the subject raises a number of important questions. What types of spaces appear in fiction in the parallel as-if-reality and in the parallel digital universe? Is it form follows function or form follows fiction?
How does the architect and designer approach the world of virtual architecture? how do I comprehend what I se?
The art historian Lise Bek has worked intensively with architecture from perception to analysis. She has developed five space generating variables, five analysis aspects. She uses these five variables to focus on the actual architecture, i.e. material, context, topography and history. In addition to the concrete parameters, she also focuses on the more social and metaphysical aspects. The fiction could be viewed from this perspective. Bek divides the aspects as described below:[4]

1. The form related aspect
2. The practical- functional
3. The scenographical-sociale
4. The iconographical significance
5. The visual perception and aesthetics.

The architect Carsten Juel-Christiansen uses a conceptual range in "Monument og niche"[5] in his chapter "Analysis of the architecture of the new city" consisting of ten concepts. He summarizes these concepts in five subjects which are the main points in his analysis of the new city's architecture.

1. Heritage and transformation (history, development and disintegration)
2. Form of totality (hierarchy, structure and image)
3. Border and transition (the parts' relation)
4. Functional characterization (social processes)
5. Meaning (from idea and subjectivity to material)

Juel-Christiansen says about his conceptual range:
"The city is considered as a set of symbols in line with the language – a collectively created

text without any ”underlying author - I”. The basic differences are separated visually and conceptually in the material of which the architectural meanings are created, i.e. the differences or contrasts can be viewed as the architectural structure’s ”voiced” or ”voiceless” sounds, its ”light” and “darkness”[6]. Juel-Christiansen works very accurately with contrasts. He says that the city is a ”system of basic differences”. The French philosopher Henri Bergson works with difference and intuition as method, as a method of division and analysis, it is a more dualistic and clear division than the set of variables which Lise Bek works with in her five space generating variables and analysis aspects. However, Bek places emphasis on each work (building), unlike Juel-Christiansen who emphasises the city as an entire area of analysis. However, the two methods are supplementary to each other. Most importantly the signs must be compared. One must ask what the differences are? Is a difference in degree to be considered or is a difference in kind in question? as phrased by Bergson[7].

If we compare Juel-Christiansen with Vivian Sobchack who had made a systematic analysis of science fiction cinema and architecture as a genre, and according to her it could be in terms of its *themes* (Heritage and transformation), its *iconography (*Form of totality), its *mode of address* (Meaning), and its *uses*[8],(Functional characterization). Sobchack has suggested that the science fiction provides “concrete narrative shape an visible form to our changing historical imagination of social progress and disaster”[9] New technologies change the social relations, and science fiction are in a constant flux searching the edge of its epoch imagination, mirroring the zeitgeist in new fictional worlds an characters who inhabit these worlds. ”This suggests that science fiction’s characteristic themes are basically twofold, having to do with technologies on the one hand and with modes of societal organization on the other.” [10]

0.5. How do I comprehend what I see? A tool box with five analytical aspects

What tools must I use to comprehend what I see? Firstly, what analysis aspects will reveal the architectural essence, the poetical space, the contents and the meaning of the works I am facing? Finally, will this reveal anything to me in connection with my hypothesis about the poetical space and about a possible essence which is apparent in both the physical as well as the virtual space?
According to Vivian Sobchack a systematic analysis of science fiction cinema as a genre could be in terms of its *themes,* its *iconography*, its *mode of address*, and its *uses.* These four themes could be combined with Juel-Christiansen conceptual range, and Lise Bek’s five analysis aspects, Sobchack, Juel-Christiansen and Bek represent: film, architecture, urban plan, and art. If we combine this with Bergson’s pairs of contrast, where he distinguishes between differences in degree and differences in kind, his dualisms are: “duration, space, quality, quantity, inhomogeneity, homogeneity, coherent, incoherent as well as memory, contents, recollection, perception, contraction, relaxation, instinct and intelligence”[11], we could get some important elements to create a analytic tool that helps us to comprehend what we see.
Bergson also states in “Matter and Memory”[12] that film is “Image, movement, matter and light” and his dualistic statements are remarkable clear. To find a thing and understand a problem is to be able to see its contrast. What we are looking for is a difference in degree and a difference in kind. To phrase it in simple terms the surface of the wall is a closed volume, as opposed to the column which is a difference in kind between the surface and the column and a difference in degree between the twined and the even column. Substance/material is the only centre of attention in this case – meaning and contents are not included. When summing up, a conceptual range for analysis of the virtual architecture may look like this.

A tool box with five analytical aspects:

1. Architectural and urban context, dramaturgy, form, scale, fiction/non-fiction, utopia/dystopia
   Substance/non-substance. Motion/time, duration/space.
2. Style typical to the period, theme, iconography, function, form, morphology, interaction, material versus form or form versus material. Quality and quantity. Coherent and incoherent.
3. The architect's intention, the instructor's, the author's and the artists' opinion. Deliberately or unconsciously embedded references in the work. Instinct and intelligence.
4. Metaphysics, sensation, its uses, the individual person's perception and sensation of the space, contents and experience.
5. Sociological approach, mode of address, the political ideological significance. The works as manifests of the spirit of the times. The intention of the constructor and the producer as well as the expression of the power, memory and contents.[13]

0.6. Aspects from the origin of the virtual architecture

No matter how different these virtual spaces are and even if they have different names such as Cyberspace, the Internet, Otherworld, The Other Plane, Second Life, Matrix and Metaverse there must be some common characteristics – but which? Is there an ontology, a school about the common principles in which realization and reality are separated in connection with the virtual space and cyberspace?
Paul Virilio discusses the absence and disappearance of the physical space in connection with the digital space, he states that: "disappearance not only affects architecture but any kind of materiality: the earth (deterritorialization), the body (disembodiment) and architecture (deconstruction – in the literal sense of the word, not the architectural style). Any kind of matter is about to vanish into favour of information"[14].
Matter and reality disappears, there is no original, the real has been replaced by a copy there is only simulation and simulacra, the "hyperreal" as the French philosopher Jean Baudrilliard coins it. "When the map covers the whole territory, something like the principle of reality disappears".[15]

5 suggestions for the most predominant characteristics of the virtual architecture.

1. **Another weightlessness**, **disembodiment and deterritorialization**. The free scale, the parallel unlimited space. The place where the horizon is as far away as the vertical space. It is fluid and morphic.

2. **Simultaneity and speed.** The dissolved dependency of place. The place outside time. The Internet has the same time around the globe. We are all at the same place and in the same time - we are everywhere.

3. **Transparency, complexity and a second order of simulacra**.
deconstruction, the digital substance has a transparency, and we are in a world in which everyone can monitor each other.

4. **The multiform architecture and narrative**. The narrative and the labyrinth of architecture. A new dramaturgy and architecture are based on an understanding of the architectural form which concerns transformations and metamorphoses as a basic principle.

5. **The digital heaven. Metaphysic and transcendence**, to be outside of and beyond the world, the place in which we substitute the Gods. The place in which we become supreme beings by means of technology. We can be the instructor, the production designer, the actor and the audience simultaneously.[16]
In the following maybe these five aspects could turn into five possible building blocks in poetry for the experience of working with the virtual architecture. And understanding

the phenomenon's of the analogue sketch, the digital sketch and the immersive experience of the sketch in the "Cave".

0.7. Working with the Virtual Architecture

In the broadest sense, the work of the architect has always been virtual – the space emerging out of the intuitive, wordless, and the unconscious. The sketch process indicates spaces and imaginary places which do not exist and may later become materialized in the real world.
There is a long tradition among architects for creating virtual utopias. Etienne-Louis Boullée with his sublime and clean geometrical forms, Giovanni Battista Piranesis with his infinite labyrinths, basements, cathedrals, and prisons, and Claude–Nicolas Ledoux with his arcadia utopian architecture are all excellent examples of this type of architect. Today it is Lebbeus Wood's prismatic, organic, floating, mutating, and abstract structures, as well as Marcos Novak's and Greg Lynn's hybrid, digital, interactive, and architectonic installations that carry the proud tradition of the virtual architecture into the future.

In this tradition it is important that we continue to show that the analogue sketch process still has a strength and power of penetration. The pencil still can be used in the middle of a time where digital utopians like Novak and Lynn have expanded the utopian room for the architecture into cyberspace.

The classic analogue design process is not necessarily opposed to the digital design process. Continuing the sketch process in a program like 3DMAX or Reino is a question about conserving the intuitive and abstract approach not falling for the photo realistic surfaces and mappings. 3D sketches do not replace the architectonic model as an absolute and powerful tool. The architect and the designer now has more "tools" than ever before at their disposal, but that is not evident from the architecture that is build out there in the real world.
How can that situation be changed? There are many external factors that intervene and control the design process before it has even started. Therefore it is important to begin in the middle of the very heart of the design process by the architect.
As architects and designers we find ourselves between the human- and the scientific field. It is the engineer field, it is the scientific, and the architecture is the human scientific, the interpreting field. It is this interpreting hermeneutic approach that must not fade away in connection with the new programmatic, technological and economic approaches. Take for example a look on the Dutch drawing office MVRDV. They are "teknoromantics". They see the computer as the new objective programmatic tool, and therefore several of their projects look like big anonymous container terminals set up in a random order. That is not to be said about Marcos Novak who hunts the spirit of the place in cyberspace and who represents the new subjectivity when it comes to the digital tools.

0.8. The Spirit of the Place

The reading of the place and the methodical approach is manifold, and all these layers of meanings encapsulated in the place, invite to a more abstract and multiform reading.
In this process it is important through the intuitive process to unfold a field of possibilities, and to create a kind of suspended animation which sporadically stops time and unfolds the room's possibilities so that the very heart in the process, creating form and interpreting the place becomes the essence of the matter. Form follows form, no form follows function. Or more precisely: form follows the senses.
Urban Rekonstruktion is an experiment in maintaining the intuitive analogue process involving only two things: the pencil and the paper. The consciousness is only to be found in the moment where the pencil meets the white surface and the line comes into existence. After

that the process transforms to the digital room. Through an analogue sketching process, the aim is to find new architectonic utopian city rooms. My point of departure is Aalborg, an old industry city with tremendous dominating vertical industry structures and open scars in the landscape. The city is in the middle of a transformation and a metaphor phase where all the symbols of the industry cultures are demolished and replaced by new more horizontal and anonymous city structures.

0.9. Between Intuition and Hermeneutics

There are many approaches and not just one single method, when it comes to understanding analyses and interpreting architecture. The closer we come to the creative determining process and its meaning, the more hazy, transparent and ambiguous it gets. Alberto Perez-Gomez says:
"A simple choice between art (as a self-gratifying formalism) or science (as applied theory or methodology, regardless of its origin or sophistication), produces equally abominable results and contributes to our alienating urban environments. If there is an ahistorical essence of architecture this is not reducible to buildings, theories, or designs."[19]

The architecture's room and reality is an endless and complex size ranging from the classical daidala to the interactive fountains and gardens of the Baroque, Gaudi´s organic house bodies, Bruno Taut´s alpine crystal utopias, the "living machines" of the functionalists, to Lebbeus Wood's radical reconstruction and Marcos Novak´s liquid digital universe. It is experience, sense perception, meaning, a language with no words, a universe with its own vocabulary.

The interpretation and the understanding of the architectural room can be hermeneutic[20] and possibly with take-off in Friedrich Schleiermacher who says this about the hermeneutic circle: "That all parts only can be understood from the unified whole and that every explanation of the parts already depend on the unified whole."[21]

There are no definitive theoretical of science tables and theories that can contain and explain the truth about the architectonic room. However, there are some tools that create the foundation for an interpretation. Gomez points in this case on hermeneutics. Gomez says: "In hermeneutics the truth is interpretation, always alternating between revealing, making known and keeping secret. Never to postulate absolute objectivity."[22]

10.0.Intuition as a Method and Bergson

The French philosopher Bergson opposes things. He says: Here is a problem, here is an object, what is its contrast? Here is a twisted pillar. What is its contrast? The plain pillar? Or is it the bearing element that is the pillar's contrast? For example: surface - pillar, closed - open, heaviness - lightness.
Finding a thing is to see its contrary, there is a difference in kind and a difference in degree. The surface of the wall is a closed volume contrary to the pillar. There is a difference in kind between the surface and the wall, and a difference in degree between the twisted and the plain pillar.
When he talks about stating and explaining the solutions to the problems when it comes to time in stead of room, it once again must be seen in connection with his use of dualities. He says: "Since the brain is an "image" among other images, or ensures certain movements among other movements, there cannot be a difference in kind between the faculty of the brain which is said to be perceptive and the reflex functions of the core."[23] It is here between intelligence and instinct the intuition is moving. Bergson´s approach is that every time we come close to a problem, we must, in order to understand it, look at it compared to its contrast and by intuitively perceiving the difference, the problem achieves substance,

form, size and detail.
The two opposites “less” and “more” are two central notions in Bergson´s intuition as a method. The first rule is to explain the problem, the second is to find difference in degree and difference in kind, the third is understanding of real time. “Less” could be seem as difference of degree and “more” as difference of kind. Bergson´s method is to find the difference between parts and the unified whole, degree and kind.
Apparently, simple tools in the creative process that nevertheless do not exclude a big complexity of other aspects. It shows how we move from one meaning to another in order to through that come to some more “fundamental aspects”.

The difference between parts and unified whole is also what Hans-Georg Gardarmar works with in the hermeneutic circle. That the contrasts or the differences are each others prerequisites. Gardarmar takes point of departure in Schleiermacher´s “Hermeneutics and Critique”, which claims that the understanding of each text depends on the understanding of the whole text, and this understanding is only attainable via each individual element. That is the hermeneutic circle - unified whole and parts, parts and unified whole.

In the intuitive process we move from a past room of experience towards a future imagine room completely free and open. Here we do not need to choose between a linear, ramified or cyclic time, here the architecture and the story are set free and as Gomez formulates it: “Historical narratives will constantly open up our space of experience, while fictional narratives allow the imagination to engage the horizon of expectation.”. “The horizon of expectation”, where the architectonic utopias/ dystopias traditionally have stayed maybe forced by the “the room of experience”. Or as Deleuze says: “And there is more in the idea of the possible than there is in the idea of the real”.

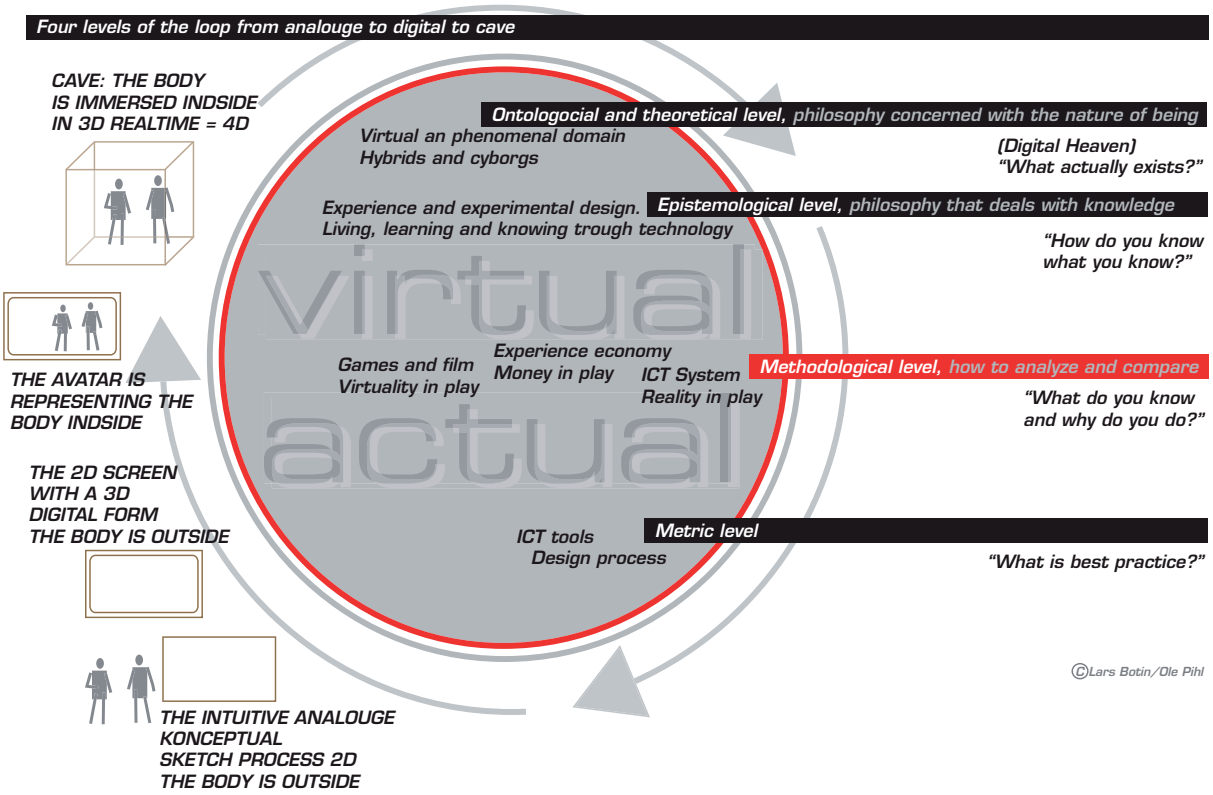
11.0. Case: Frydendal, freeway 52

In order to pick out the respective cases Carsten Juel-Christiansen´s comparative analysis method is used[24]. Juel-Christiansen´s method takes it point of departure in the five aspects:
1. Legacy and Transformation (development). 2. Form of unity (Unified whole and parts). 3. Boundaries and passages (the relation of the parts). 4. Functional marking (processes). 5. Meaning. The five aspects are important as tools that can show contrasts and prerequisites in the urban context.
The five aspects of Juel-Christiansen help to ask several introductory questions to a work hypothesis.
What is the place and how can the spirit of the place be found through searching the contrasts of the place? What is part and what is unified whole and what do the single portions mean? What is legacy and what is transformation?

First case - boundary and passage. The approach of the highway from south is a modern interchange with several bridges, cross-roads and many types of traffic. The place is actually a city gate, this is where the city begins and Ådalen´s meadow and lake area ends. It is a urban No Man’s land which is difficult to force. Finding the spirit of the place is to describe several contrasts: asphalt - water, concrete - grass, pedestrian - car.
The project is to develop a “catalogue” which could point to a new utopian architectonic vision for the old industry city of Aalborg. The project is also a co-operation, especially in the reflexive part with art, and architecture historian Lars Botin from Institute 20, Aalborg University.

12.0. Conclusion: beyond simulation and digital dreams

There is a boundary breaking difference between the three ways of perceiving the sketch process. The analogue sketch process has a fundamental simplicity, it is the black



line of the pen on the white, it is the sound of the pen, imprints in the soft material on the drawing block. It is the tactile perceiving and the movement of the pen and a search for a possible form of meditation character where the sound of the pen against the paper becomes a mantra. It is a transcendental process.
When the sketch process is transformed to the digital field, it is the fascination of the scale less and the complex interaction of the interface with the possible form which is central just like the freedom of being able to freely manipulate the form over the x, y and z-axe.
The lightness and flexibility in the 3DMAX disappears in the Cave and becomes a monumentality. The free scale opens for a macrocosm and a microcosm, the sense perception of the virtual room becomes a staggering experience on the edge of a film or a dream. To comprehend and analyze what really happened, and describe the journey of the body from being outside the sketch to be immersed inside the sketch, we could use the model of the "virtual pentagram" with its five virtual aspects.

1."Another weightlessness". The phenomenological status towards the body and the consciousness becomes to a higher degree a simulated dream, because this is the only place we know where the scale is free, the room is never-ending and has no gravity. As Virilio states it, it becomes a matter of disembodiment and deterritorialization. The simulated dream becomes a second order of simulacra. But is the dream a second order simulacra?, or a second order of reality?
Barthes asks what the myth is today; he says the myth is a three-dimensional pattern consisting of:
"The signifier, the signified and the sign. It is a "meta language because it is a second language, in which one speaks about the first."[26] The myth is a meta-language because it as a secondary language speaks about the object language. It is possible on the basis of Barthes to state that the simulation in the "Cave" is a second order meta image and a second order simulacra based on the program code of the computer. But the dream is not a second order simulation; it is a world beyond

our control, the dream is as Jung states “a complementary world” to balance our psychic stability. To be immersed in a “Cave” is not a simulation of the dream but it is more a meta image and language as the myth, the cave reconstructs the 2D intuitive sketch into a realtime animation based on polygons, and depending on its interaction and complexity it becomes a virtual object of fascination.

2. “**Simultaneity and speed”.** The dissolved dependency of place, there is no place you are anywhere and nowhere, the place is outside time. Technology becomes a core tool, the speed and complexity of any new (digital) technology becomes the true vision of the “zeitgeist”. According to Virilio any new technology carry its disaster, the ship the train the planes, but what is the disaster of the new virtual technology? That we forget our true dreams and replace them with a second order of simulacra, the controlled digital dream? That is the risk with the cave technology.

3. “**Transparency, complexity”.** Annette Kuhn states “Science-fiction cinemas rests on a particular gaze”. We can speak of fascination and the phenomenonology of vision, the transparency and complexity of the vision becomes the object of this particular gaze, as in science-fiction this is also the core in the fascination of the cave technology, it has a tendency to overrun the original vision of the simple intuitive sketch. The digital work of the artist has left one of its original fundamental principles to be the “one original” tactile peace of art work, there is no original anymore only the infinite digital original.

4. **The multiform architecture and narrative**. The sketch in the cave opens for a new dramaturgy and architecture, based on an understanding of the architectural form which concerns transformations and metamorphoses as a basic principle. In the same way as the story which Borges describes in ”The garden of forking paths.”[27] It is a circular story with many branchings, it is not linear, but rather multiform in its narrative structure. It is a series of detached pictures and scenes, which the reader himself ties together.
Umberto Eco summarizes his examinations of the poetics of “open” work by pointing out that it is characterised by an invitation to create the work together with the artist. Eco states: “Any work of art, even being produced according to an explicit or implicit poetics of necessity is basically open to a virtually endless series of possible solutions which separately give the work new life by following a perspective, a taste and a personal execution.”[28] The stories in the VR media are stories about worlds which can be explored. Like when we travel and get to new and strange cities, then our curiosity is part of the story in the new world.

5. **The digital heaven,** is about metaphysic and transcendence, it is to be outside and beyond the world, into the place in which we substitute the Gods. The place in which we become supreme beings by means of technology. We can be the instructor, the production designer, the actor and the audience simultaneously.

The studio Asymptote, comprising Lise Ann Couture and Hani Rashid, have with their “Virtual Guggenheim“ project pointed towards a crucial point that deals with the replacement metaphysical function of digital space. We do not build cathedrals and churches in Cyberspace, but we transfer the great art museums to contemporary cathedrals.
It is art and the new digital media that must tell us about the meaning of our short lives and give us a sense of the infinite and boundless universe. Can we feel weightless as submerged and swimming in another element; will we shudder or get a little glimpse of eternity, which we previously got in church during the service, or whenever we sat alone in the great dark rooms of the cathedral? The ambition regarding “Virtual Guggenheim“ is to create: “a new architectural paradigm“ and Asymptote is of the opinion that it will become the first important virtual building of the 21st century; it must be “fluid“ and interactive, and it must be able to redefine itself depending on the circumstances.

But what we are doing here is hermeneutics and we must remember what Gomez says: “In hermeneutics the truth is interpretation, always alternating between revealing, making known and keeping secret. Never to postulate absolute objectivity”. In the Cave you are surrounded by the boundless virtual room, you are in the power of your own sketch. The scale less and never-ending room increases the complexity in the perceived input, and the reflexive loop gets both a horizontal and vertical reflection just like David A. Kolb describes it in his circle model where the vertical describes the intuitive sensed, and the horizontal represents the reflexive and intelligible. Should we try to adapt the tripartite sketch process to Kolb´s circle model[29] it would in this case look like this, a cycle or chain consisting of four stages:

1. Analogue Sketching. Abstract Conceptualization. Concrete Experience.
2. Digital design. Active Experimentation.
3. Digital Cave. Concrete Experience.
4. The horizontal Reflective Observation. Analyzing the loop.

By Kolb the four stages represent two levels:
1. Concrete experience/abstract conceptualization and
2. Active experimentation/reflective observation.

Both levels represent to dialectic contrary dimensions and contain a dynamic representation of part and unified whole, or out in a more simple way: action/reflection - action/reflection in a repeating cycle. In this connection it is difficult to reduce the process to less than four part elements.
The process is also a transformation of a representation through several media types. The process also represents several theory of knowledge categories which describe the relationship between the picture and what it depicts and how it is perceived.
The question is whether it is really a tripart or a dialectic loop? The sketch loop is a complementary contribution to the design process in the sense that the classic, dualistic iterative circle becomes a tripartite circle or triangular process model. Because when the cave is introduced, the cognitive activity of “the sketch” becomes more complex, and the simulation of the imagined possible becomes almost infinite.

This is another and new virtuality, and the next step is that we begin to use “virtual clay” in realtime and print it in 3D. But does the simulation stop when the imagined possible becomes a physical form? Somehow the loop ends in the “print”, which represents Kolb´s second level of the reflective observation. It is tangible and its scale is definitive. When we look at the five virtual aspects and Kolb’s hermeneutic loop there are still a basic duality between analogue and digital or tangible and virtual. However, the sketch loop could be seen in a reverse optic through the three levels of Plato’s knowledge categories:

1. The sketch experienced in the world of phenomenon in the cave.
2. The Euclidian mathematically construction of the simulation with the software.
3. The clear, analogue abstract conceptualization with pen on paper, in the light of the idea.

So what comes first? Each of the levels are a loop in itself. There is no hierarchy as Bergson explained: Finding, explaining and analyzing a thing is to see its opposite. There is a difference in kind and a difference in degree when one compares and opposes things that bring enlightenment and knowledge. As the artist and film director, David Lynch, explains it: “Intuition is seeing the solution – seeing it, knowing it. Its emotion and intellect going together.”[30]

Plato explained the theory of knowledge categories trough his cave parable. He thinks consecutively, holistically describing that the phenomena has parts in the ideas and that reality is connected to the divine. In his cave parable Plato describes this movement from the world of the phenomena to the light of the ideas.

In Plato's cave the producers are placed at the farther end of the dark where they can do nothing but experience the moving shadows on the walls of the cave. These shadows are made by the artefacts carried by the guards behind, and the shadows turn into the workers pictures of reality. Outside the cave the philosophers are place under the sun and from there they have a good view on the intelligible and visible world. Peter Thielst[31] compares these three rooms with Plato's tripartition of the state in the three classes: "At the bottom (1) the big group of slaves, workers, farmers and tradesmen who produces the necessaries of life. Above (2) a smaller but more powerful group of guards and officials who must defence the state externally and internally secure that the citizens do their duty. On the top there is a little elite of highly-educated and wise men - the philosophers.
Apparently, it looks like we now with the virtual room can be all three places in Plato's cave at the same time.
We can go from being those in the power of the senses at the farther end of the cave to the instructors and architects that create the seductive shadows on the wall and finally out under the sun to the analysing and reflecting world of the philosophers.

In conclusion, it is not enough to merely sketch in 3D. However, there is no reason for thinking that the analogue sketch has an advantage over the digital, because together they strengthen the creative sketch process. And with the Cave a new synthesis is created that gives us even more opportunity to experience and create new utopian spaces and imaginary places to enrich the sketch process and the experience of the virtual architecture.

The intuitive dream and the cave? The Finish artist Wille Mäkelä[32] together with Tommi Ilmonen has developed the program "Helma" a Fine Motor Interaction Methods for Immersive Free-Hand Expression. A tool for 3D intuitive sketching, in the cave its gives you the experience to work as a sculptor in virtual clay. By using special 3D glasses you can walk into the works and view them as freely as real sculptures. This is maybe the closest to intuitive real-time 3D sketching. Then you can bring the sketch into 3DMAX and continue the sketch finally you can bring it into a game engine and play and explore your new abstract world.

13.0. Perspectives: Who are you? "I am the architect.."

Neo: " Who are you? …."I am the architect, I created the Matrix" Neo the protagonist in "The Matrix" trilogy finds in his quest for an explanation on his origin and an answer on the meaning of his life to his creator. This creator is a program that calls himself "The architect" he explains to Neo that he is the sixth edition of himself, a precise well-thought-out and programmed "anomaly" he is the small unpredictable element in the great program and simulation, he is almost "a human factor".

Sci-fi has become mainstream and, as a genre, it consists of a wide range of subgenres. "Matrix", "Sky Captain" and "Sin City", are films that transcend a new thinking in terms of the use of style and architecture, the films works with new edge-cutting 3D "blue screen" digital film technologies. "Sin City" is not sci-fi but pure virtual fiction, but the point is that the new digital technology can create infinite virtual and utopian worlds.
When you by games as "Far Cry"(Sandbox)[33] and "Half Life 2"(Hammer)[34] and other new games you get the engine "tool" so you as a user can create new virtual worlds. You can implement your objects and architecture from 3DMAX and you can create impossible worlds, only the tools, your skills and your imagination is the limit. Newer before has the variety of tools in the creative process been better for the architect and designer, we design dreams and simulations and the edge between the real and the virtual becomes more and more blurred, and the simulations becomes a extension of our dreams, a extension from the world of knowledge to the world of phenomenon.

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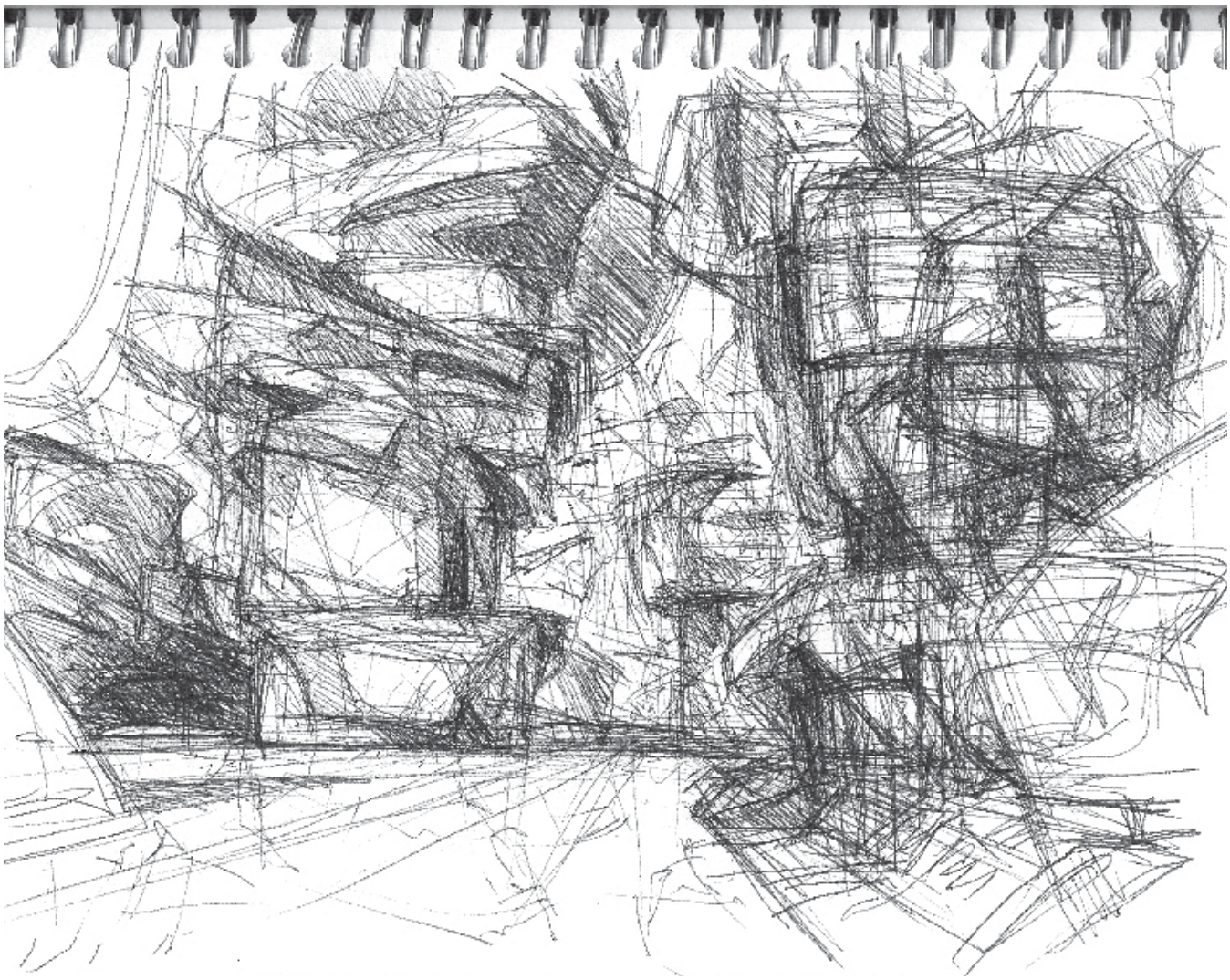
1. Immersive Virtual Enviroments Laboratory: "Overview":http://www.cs.ucl.ac.uk/research/vr/Projects/Cave/index.htm
2. Immersive Virtual Enviroments Laboratory: "To simulate the effects of stereo, each eye must be presented with its own perspective correct image and the illusion across the field of view. Even without allowing for head movements, the visual field subtends about 180° laterally and 120° vertically. In comparison a 19" monitor viewed from 2 feet subtends only 35° laterally and 27° vertically. The visual systems in the cave also make use of non-visual information. Proprioceptive information is provided by our vestibular balance mechanisms and by kinesthetic data from muscles controlling neck movements, eye movements (convergence) and focus (accommodation)".
3. Alberto Perez-Gomez. "The Case for Hermeneutics as Architectural Discourse". Architecture and Teaching Epistemological Foundations. Comportements Lausanne. 1998. p. 21.

4. Lise Bek & Henrik Oksvig "Rum analyser. Arkitekturtidskriftet B. 1997.
5. Carsten Juul Christiansen: "Monument og niche: The architecture of the new city". English translation by Paula Hostrup-Jensen. Rohdos 1985. p.56 – 62.
6. p. 57.
7. Gilles Deleuze: "Bergsonism". Zone Books. 1991. p.25.
8. Vivian Sobchack: "Science fiction", in Wes D. Gehring, ed., Handbook of American film genres, Wesport, CN: Greenwood Press, 1988, p.229.
9. p.231.
10. Annett Kuhn: "Alien Zone 2. The space of science fiction cinema". Verso 1999. p.3.
11. "Bergsonism". p.21.
12. Henri Bergson: "Matter and Memory". Trans. Nancy Margaret Paul and W. Scott Palmer. London: George Allen and Umwin, 1911.
13. Ole Pihl: "Stedet der ikke er" (The place that is not) own trans. Aalborg University press 2003. p.73.
14. Paul Virilio in an interview with Andreas Ruby in "The virtual dimension" Edited by John Beckmann Princeton Architectural Press. New York. p. 186.
15. Jean Baudrillard: "Simulacra and Simulation" Translated by Shelia Faria Glaser. Ann Arbor The University of Michigan Press 1994. p.123.
16. Ole Pihl. p.76.
17. [2] Donald A. Schon. "The Reflective Practitioner. How professionals think in action". Ashgate Arena. 1991 p.76
18. [3] Lars Qvotrup. Det hyperkomplekse samfund. Gyldendal. 1997.
19. [4] Alberto Perez-Gomez. "The Case for Hermeneutics as Architectual Discourse". Architecture and Teaching Epistemological Foundations. Comportements Lausanne. 1998. P. 21.
20. [5] The word "hermeneutic" comes from *hermeneutike*, which is the Greek expression for "linguistic articulation" and "expression". Furthermore, it is the Greek god who is the messenger from the gods to the humans. Hermes translates, promotes and interprets the words of the gods to the language of the humans.
21. Friedrich Schleiermacher: "Om begrebet hermeneutik". Two lectures held in 1829 in the Academy of Sciences in Berlin translated to the book "Hermeneutik - en antologi om forståelse" red. Jesper Gulddal og Martin Møller. 1999.
Gyldendal p. 63.
22. [7] Gomez. p28.
23. [8] Gilles Deleuze. "Bergsonism" Zone Books. 1991. p. 24.
24. [9] Juel-Christiansen. "Monument og niche".
25. [10] "Non-places" introduction to anthropology of supermodernity Marc Augé Venso, 1995
26. Roland Barthes: "Mythologies" (1957). Vintage Random House. 2000. p. 66.
27. Borges: "Labyrinths Selected Stories & other Writings." New Division Book. 1964.
"Garden of forking paths" p. 19 – 30.
28. Umberto Eco: "Det åbne værks poetik." p. 120.
29. [11] David A. Kolb. "Experimental Learning". Prentice Hall. 1984. PTR p. 42.
30. David Lynch: "Catching the big fish, meditation, consciousness, and creativity". Jeremy P. Tarcher/ Penguin Books 2007. p. 45.
31.[12] Peter Thielst. "Man bør tvivle om alt - og tro på meget" Historien om filosofien. Gyldendal p. 74.
32. Wille Mäkelä: Helsinki University of Technology University of Art and Design, Helsinki: http://www.tml.tkk.fi/Research/HELMA/
33. http://downloads.gamezone.com/demos/d10978.htm
34. http://halflife2.filefront.com/



Play and dream your city. 3 sketch loops

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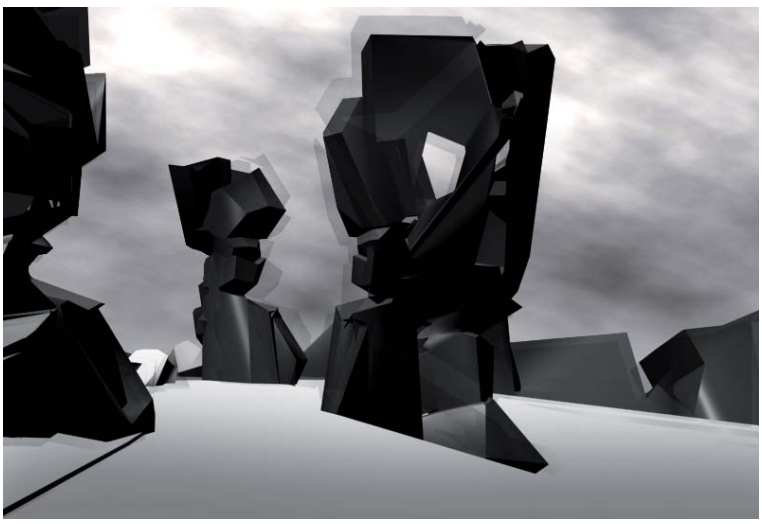
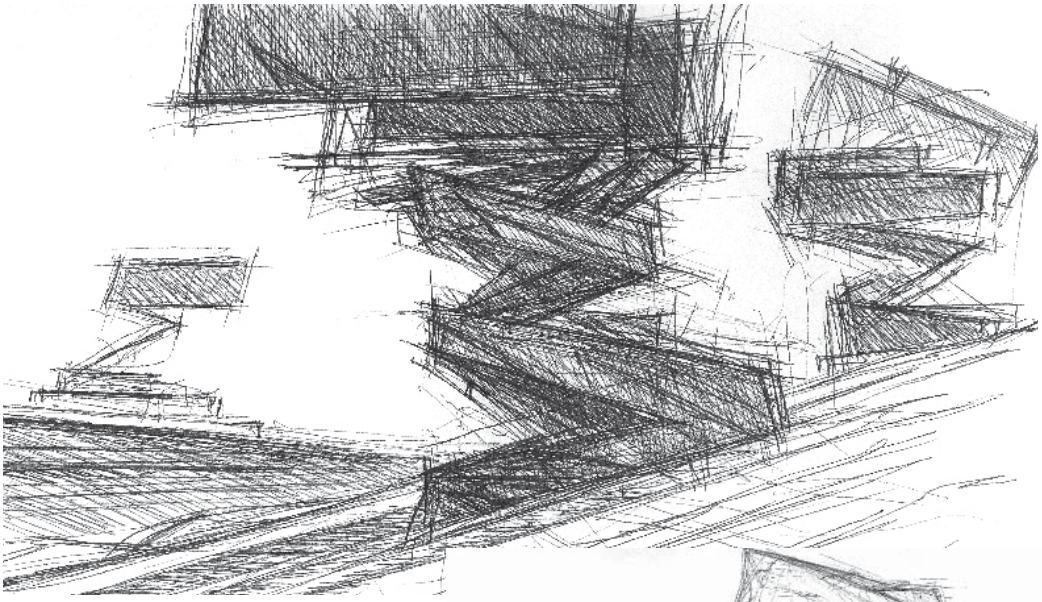
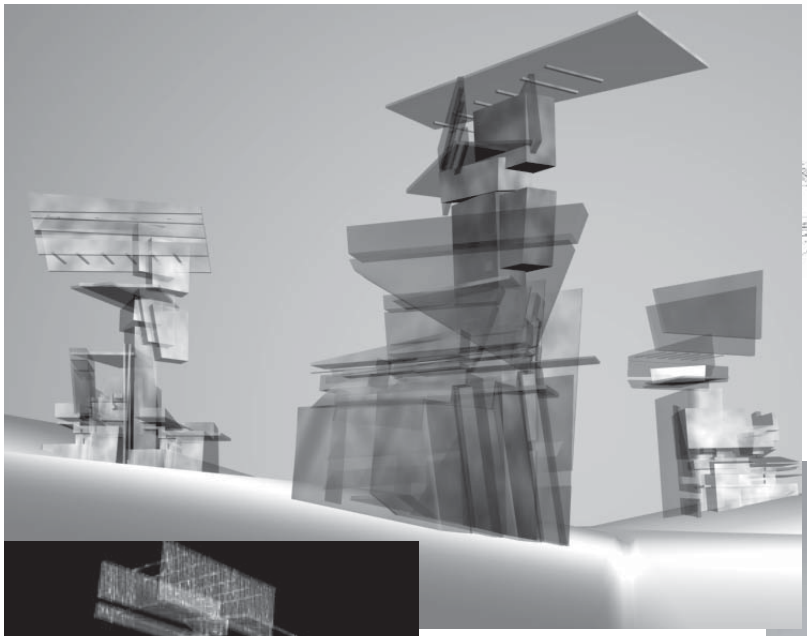
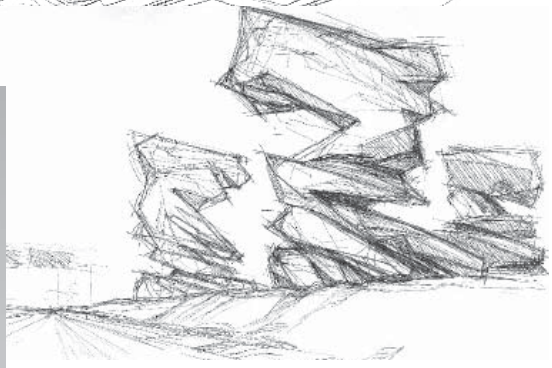


Frydendal. First sketch loop

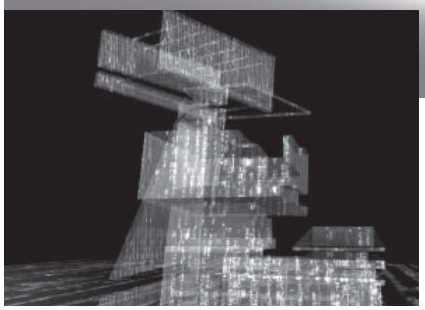
1. The analouge intuitive sketsh, pen and paper. The sketch is without scale but attached in the process to the A4 recktangular format.
The fi rst meeting with a new city is the bilboards recktangulary planes along the highway.

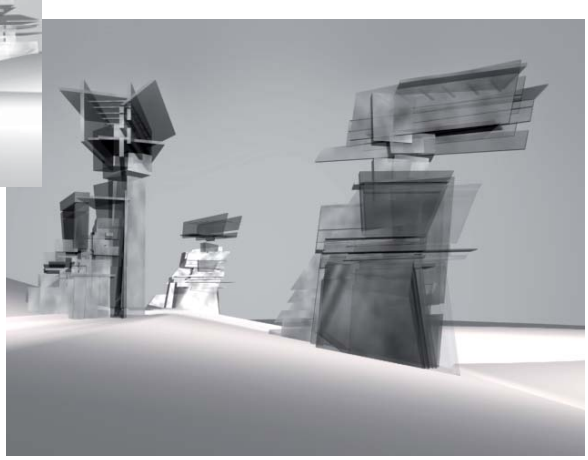






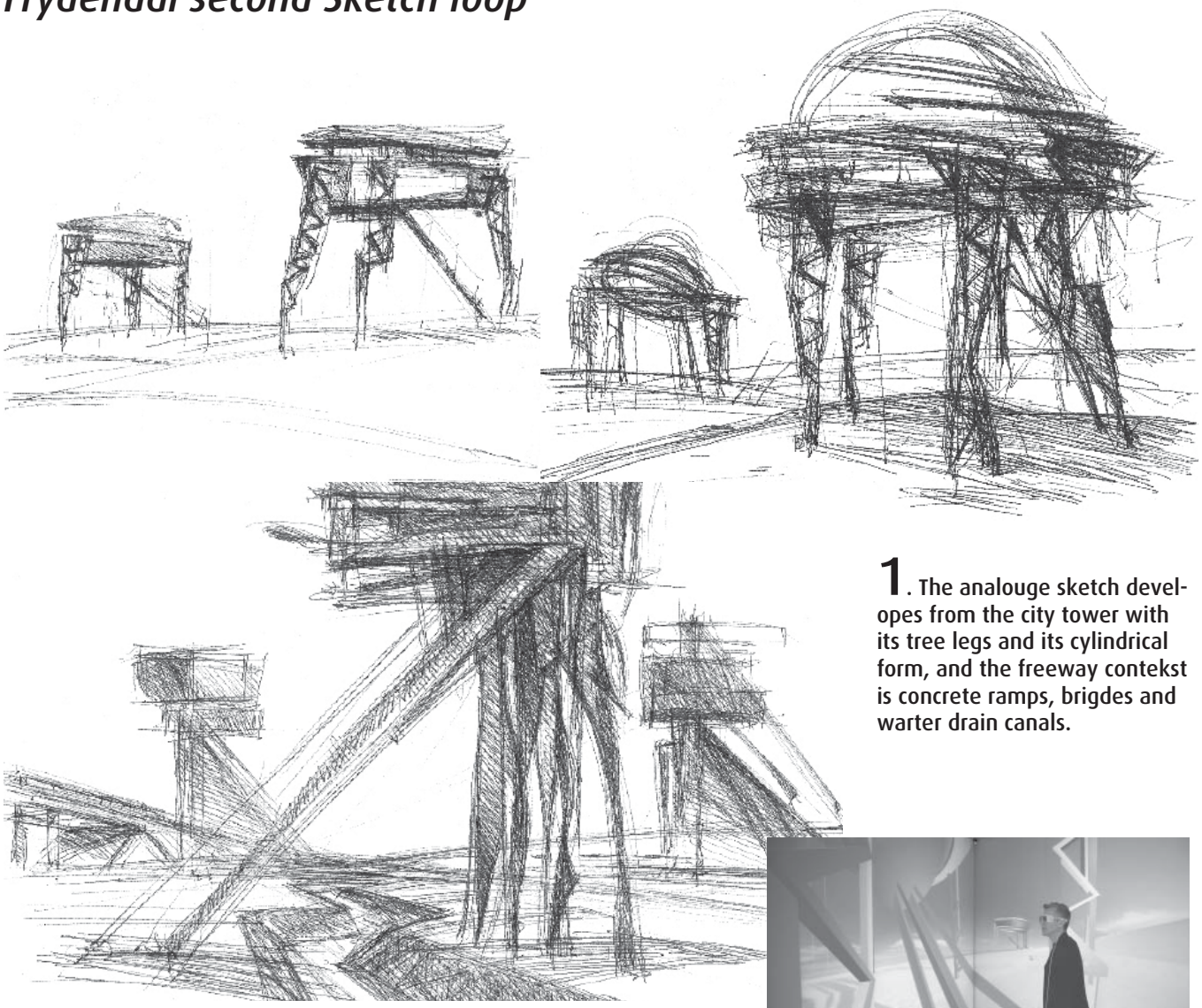
2.The digital sketch. 3DMAX and Photoshop. No scale as the analouge sketch, but the form is kept behind the two dimensional screen.





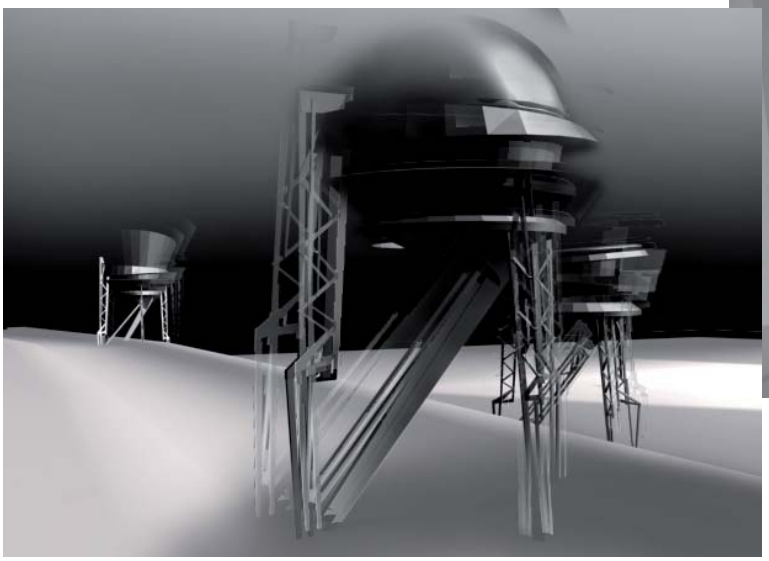
3. Testing 3DMAX sketch in the cave. The sketch becomes a 1:1 model. The architect and the designer steps into the sketch, as if it was "real". The user has glasses with a realtime tracking system,that secure, that the six sides of the cave wil be experienced as one infi nite virtual room. The user is "immersed" in the virtual space and are swimming or fl ying in his/her own sketch. Here the fi rst sketch loop ends.

Frydendal second Sketch loop



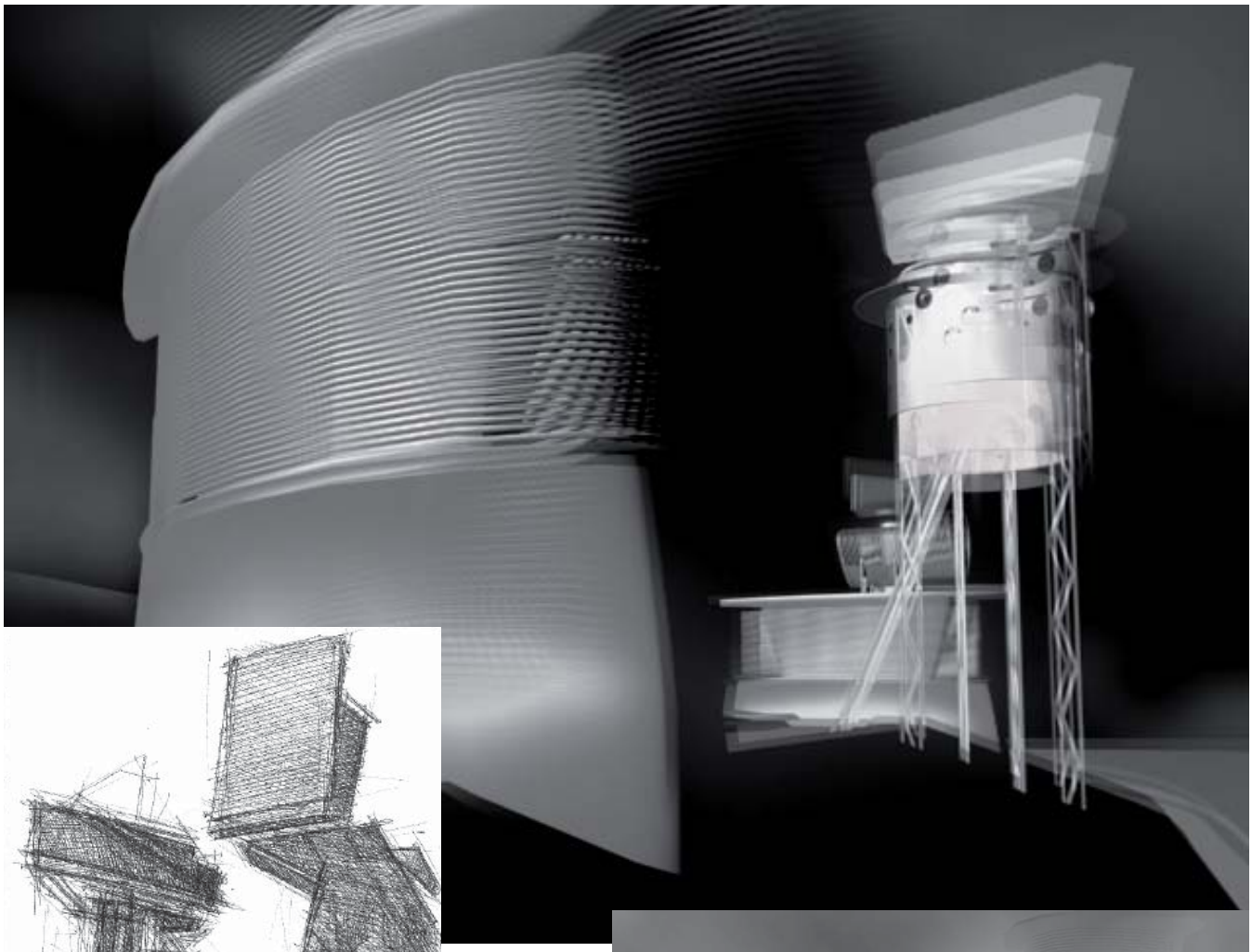
1. The analouge sketch developes from the city tower with its tree legs and its cylindrical form, and the freeway contekst is concrete ramps, brigdes and warter drain canals.

2. The digital sketch. 3DMAX and Photoshop. The loose and open style of the analouge sketch becomes a complete contrast to the smooth semi-transparent surfaces of the digital sketch, that only partly gets distorted by other transparent layers from different perspective points.

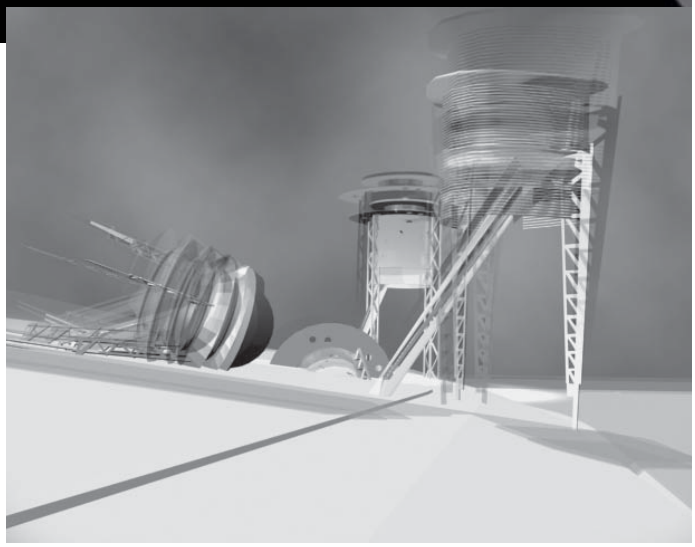


3. Testing 3DMAX sketch in the cave.
The sketch becomes a 1:1 experience. End of second sketch loop. The user is in his/her own model and experience the sketch on the body.

Frydendal second Sketch



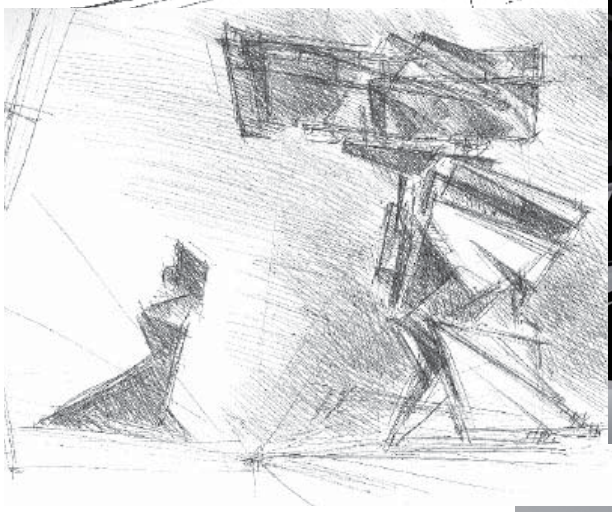
1. The analouge and intuitive sketch on paper with pencil.



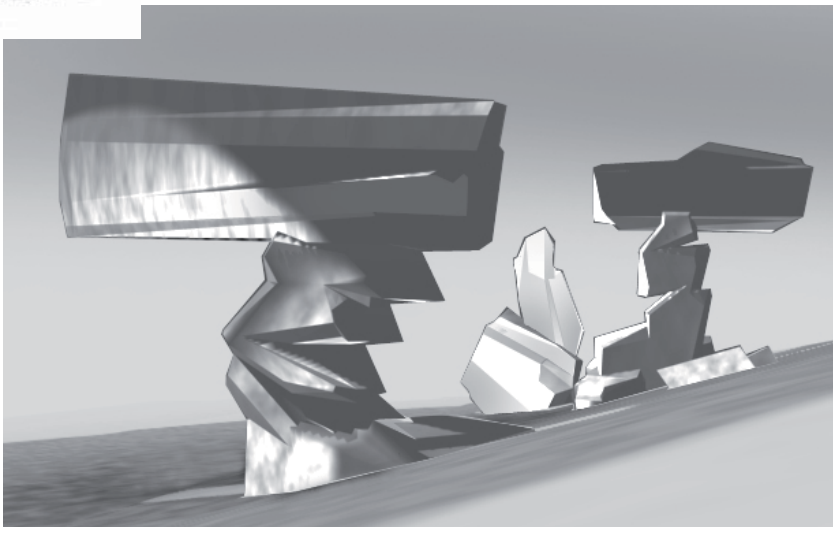
2. The digital sketch. 3DMAX and Photoshop.

3. Testing 3DMAX sketch in the cave.
The sketch becomes 1:1

Frydendal third Sketch loop

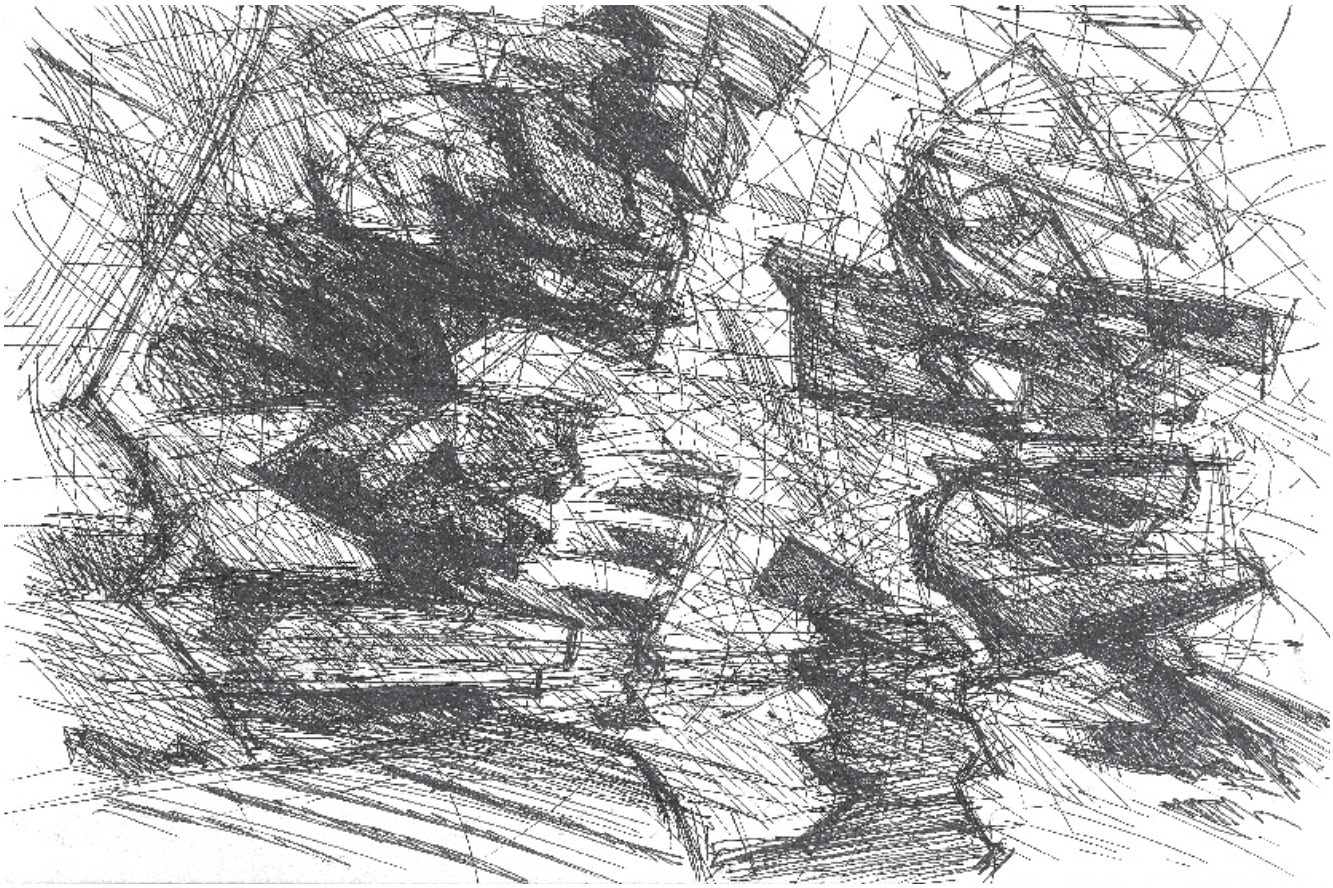


1. The analouge and intuitive sketch on paper with pencil.



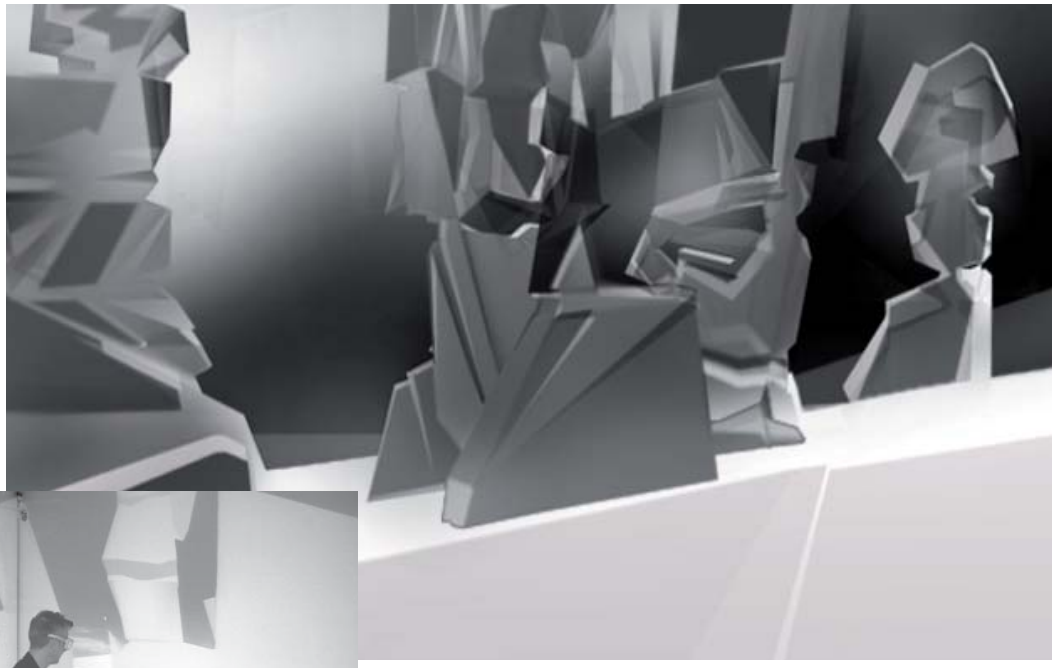
2. The digital sketch. 3DMAX and Photoshop.

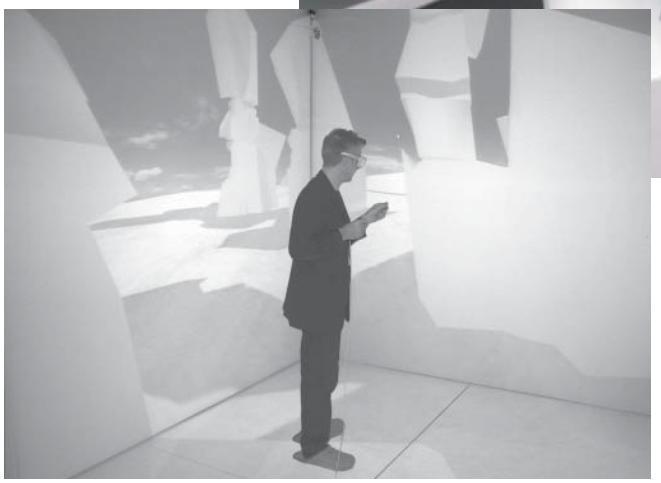
Frydendal third Sketch loop



1. The analouge and intuitive sketch on paper with pencil.

2. The digital sketch. 3DMAX and Photoshop.





3. Testing 3DMAX sketch in the cave.
The sketch becomes 1:1. End of thirs sketch loop.